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A Meeting with Perot?

Biomedical Groups Await Clinton's Plans for NIH Head

The biomedical grapevine in Washington is abuzz with wonder over whether NIH Director Bernadine Healy has a future in the Clinton Administration.

Interest in this matter is stoked not only by the widely contrasting attitudes toward Healy, who has roused admiration and animosity since taking the NIH post in April 1991. Also involved—assuming Healy would want to stay on—is the yearning of biomedicine's chieftains for the NIH post to be regarded as non-political, i.e., not tied to a political party. As such, the Director wouldn't join the exodus of agency chiefs that routinely occurs when the White House changes hands.

In the case of the NIH directorship, law and past practice do not provide sure guidance. And the present situation is complicated by the fact that a doting press has given Healy a public visibility that politicians might envy. An adulatory profile in the *Washington Post* last June described her as "the

Congressional Election Results—P.4 *New Way of Tallying Scientists—P.5*

woman who now holds the most powerful position in American science." Outside of biomedical circles, NIH directors have previously been very low-profile public servants.

Ross Perot named Healy in one of the Presidential debates as a possible Vice Presidential candidate on his ticket. *USA Today* reported on October 20 that Healy met with Perot to discuss the matter. "Though she turned Perot down," the newspaper quoted a Perot aide as saying, "he was really impressed with her."

When SGR asked one of Healy's press assistants whether Healy had met with Perot, as reported, the answer was that she had not. Reports of the meeting, however, persisted, and when the question was raised again, Healy's press shop refused to reply. Healy did not return SGR's telephone call.

Prior to 1974, the Director of NIH was appointed by the Secretary of NIH's parent department, now Health and Human Services, and served at the pleasure of the Secretary, though the White House usually looked on with interest.

Under that arrangement, directors spanned presidencies. James Shannon was appointed by the Eisenhower Administration in 1955, served under Kennedy, and through all but the last five months of the Johnson Administration. Shan-

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Presidential Transition Report

There's No Hurry on Making Decisions About R&D Issues

The word from inside the Clinton camp is that the President-elect and his transition team are nowhere near addressing the subjects dear to the capital's science-policy community.

Though the sci-tech establishment publicly declared its preference by organizing Scientists and Engineers for Clinton-Gore [SGR, October 15], none of the chieftains of R&D in this group or any other are closely connected to the Clinton inner circle. In fact, leading figures in American science are asking whether anyone has heard anything.

A few clues, mainly derived from campaign statements, are available. The appointment of Robert Reich of Harvard to the transition team reaffirms Clinton's commitment to skill and technology as indispensable ingredients of eco-

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In Brief

How quickly can Clinton put his imprint on the federal budget? Easily overlooked in the rush of campaign promises is that an incoming President arrives at the one-third mark of the current fiscal year, and that a budget for the coming fiscal year (FY 1994), which starts next October 1, will be virtually completed at the Office of Management and Budget before Inauguration Day. The new Administration can make minor adjustments and seek supplemental appropriations, but major spending changes will be extremely difficult to achieve.

A major study of agricultural teaching, research, and extension at Land Grant institutions is planned by the Board on Agriculture at the National Academy of Sciences. The study, budgeted for \$1.3 million, is expected to take three years. For further information: Carla Carlson, Director of Communications, Board on Agriculture, National Academy of Sciences, 2101 Constitution Ave. NW, Washington, DC 20418; tel. 202/334-2252.

The Canadian Office of the Comptroller General is supporting a new quarterly newsletter, *Evaluation of R&D*, aimed at providing assessments of Canadian R&D "written and edited by unpaid volunteers in the R&D evaluation community around the world." The Office of the Comptroller General is involved, the first issue states, because "of its critical role in the assessment of Canadian federal government programs." First issue available without charge from: Evaluation of R&D, 10th Floor, West Tower, L'Esplanade Laurier, Ottawa, Ontario K1A 1E4, Canada; fax: 613/957-7240.

... How Will OSTP Fit Into Staffing Structure?

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conomic growth. Reich, a lawyer and writer on economics, is a leading advocate of winning in world marketplaces by being smarter and faster. Investment in scientific and technical prowess are essentials in his formula.

But firm information is sparse to non-existent about the incoming Administration's plans for science and technology, beyond numerous campaign promises to support technology as an economic elixir. It isn't that plans are tightly held. Rather, Clinton and company are preoccupied with weightier matters than the placement of science and technology policy and advice in his Administration.

These circumstances add intensity to many questions of great importance to the S&T community, regardless of Clinton's misguided priorities. Tops among these questions are who, if anyone, will be the President's Science Adviser? How will Clinton carry out his campaign commitment to a bigger federal role in support of civilian technology? What's ahead for basic research amid the often-repeated commitment to concentrate on commercial payoff from federal research spending?

The widespread fascination with these matters is the occasion for a public seminar on November 20 organized by the American Association for the Advancement of Science, "Election 1992: Outcomes and Implications for Science and Technology." The likelihood is that the implications will be as unknown then as they are at this writing.

A widely held, unquestioned assumption is that there will indeed be a Presidential Science Adviser in the Clinton Administration. Most likely so, since abolition or demotion of the post would expose Clinton to unbearable public recriminations by the mandarins of science.

Nonetheless, the incoming President is reported to be studying the White House staff structure with unusual care and resistance to preconceptions. Though the leaders of science have long regarded the President's Science Adviser as their community's own emissary to power, nothing assures continuation of the tradition of a Presidential Science Adviser posted in or close by the White House. The same uncertainty applies to the locale and responsibilities of the Office of Science and Technology Policy (OSTP).

OSTP could remain a part of the Executive Office of the President, unattached, as at present, to any other part of the Presidential staff structure, with its Director traditionally serving as Presidential Science Adviser. But several indications of organizational intent from Little Rock invite wonder about the place of a science-advisory apparatus in a Clinton White House.

With the election of Clinton, the focus of political interest has decisively shifted from science to technology. But it is the latter in which OSTP has traditionally been a weak performer. Within the federal establishment, OSTP mainly functions as the guardian and promoter of academic basic research, while the executive departments and their

allies look after the big-spending, big hardware programs of space, energy, and defense.

Clinton's major campaign statement on research-related issues, "A National Technology Policy for America" [SGR, October 15], says that Vice President Al Gore will be his Administration's chief of technology policy. The language in the paper falls short of a detailed job description for the Vice President's duties. The indications, however, are that Gore will do far more than chair a high-level committee that meets now and then to review matters and do a bit of politicking *a la* Dan Quayle in his role as Chairman of the National Space Council.

Clinton's technology statement says OSTP and the closely associated Federal Coordinating Council for Science, Engineering, and Technology (FCCSET) will be strengthened. But it offers no specifics, beyond pledging that the two organizations will "play an important role in coordinating policy and enhancing cooperation between the private and public sectors."

Meanwhile, Clinton says he will create an Economic Security Council, as a domestic counterpart to the National Security Council. And there's a good deal of talk about reshaping the Commerce Department into the federal focal point for supporting and invigorating civilian technology. Commerce is homebase for the National Institute of Standards and Technology (NIST), which Congressional Democrats, over Reagan's resistance, fashioned out of the venerable National Bureau of Standards in hopes of creating a powerful agency for supporting civilian research. Reagan refused to support NIST's new industrial role, and at the outset of his Administration, Bush refused, too.

But, with Congress pushing hard to assist industry, Bush eventually went along and now industrial-aid programs have emerged from the embryonic stage at NIST. Clinton's technology statement calls for doubling the NIST budget as part of a major drive to put more zip in industrial technology.

The new Economic Security Council will surely take an interest in technology programs focused on economic growth, as will, of course, the Vice President in his role as maestro of government technology programs. Where this leaves

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... Changes at NIH Have Followed Past Elections

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non's successor, Robert Marston, was appointed in September 1968 by the Johnson Administration, one month before Nixon's election, and served to the end of Nixon's first term, January 1973. The next Director, Robert Stone, served under Nixon and Ford, and left office in January 1975.

Meanwhile, Congress had elevated the NIH post to the level of a Presidential appointee, confirmable by the Senate. The first occupant under that arrangement was Donald S. Fredrickson, a Ford appointee who served through the Carter Administration. Fredrickson stayed on for the first six months of the Reagan Administration, thus providing a slim precedent for the appointment, though Presidential, to be regarded as above partisan politics.

In April 1982, Reagan appointed James Wyngaarden, who served to the end of the Reagan Administration—and, symbolically, through the first six months of the Bush Administration, when Bush's appointees at HHS suggested that he might leave.

Thus, since the post became a Presidential appointment in 1974, a record of trans-administration tenure has been built. But it's pretty frail.

The Director of the National Science Foundation is also a Presidential appointee, but by statute, the job is insulated against political change. Whereas the NIH post is open-ended, the NSF Director holds a six-year appointment, thereby spanning the Presidential term.

When President Bush, pre-election, announced that he

had requested *pro forma* resignations from all his appointees as a prelude to rebuilding his Administration for a hoped-for second term, NSF Director Walter Massey was excluded from the edict. It's an old tradition at NSF. It's not known whether Healy submitted a resignation, but it's doubtful that it would have been accepted if Bush had won.

Healy has not disclosed her preferences or plans. One of the leading elders of academic administration told SGR that Healy has told friends she'd like to keep the NIH post but doubts that Clinton will ask her to stay.

Clinton's choice for Secretary of Health and Human Services—as yet unnamed—is likely to be the most influential person in making that decision. But on the pure politics of the choice, Clinton could score many points by inviting Healy to remain.

Healy's political label, whatever it may be, should not be a concern, according to Clinton's pledge, at his first post-election press conference, to range across the political spectrum in seeking talent for his Administration.

Healy is extremely popular in Congress, she's the first woman Director of NIH, and she's probably as well known to the public as anyone in the sciences today. The fact that she has bruised many egos in Bethesda is of deep interest in biomedical circles, as are allegations of rampant ambition on her part. But the general public has no interest in such matters. In the public mind, she's a dedicated warrior against horrible diseases. Could be a sure winner for Clinton—DSG

In Search of Science Policy

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OSTP is hard to say, but it should be noted that science advice is not a deeply rooted institution at the White House.

In the Bush and Reagan Administrations, the appointments of Presidential Science Advisers came several months after inauguration day—unthinkable for positions that are deemed essential to White House operations.

OSTP has had many ups and downs since 1976, when Congress and President Ford undid Richard Nixon's abrupt abolition of a prior edition of the office. The potency of the office and its predecessors has varied widely from administration to administration, depending on the length of leash allowed by the President and his close political advisers.

As chronicled in a new and revealing book, *Cardinal Choices: Presidential Science Advising from the Atomic Bomb to SDI* (Oxford University Press), by Gregg Herken, Presidential science advising throughout the postwar period has been largely a frustrating experience. Herken, Chairman of the Department of Space History at the National Air and Space Museum, confines his study to the performance of the White House science advisers on arms-control issues. But it's evident that in other areas, too, White House science advising usually falls far short of C.P. Snow's prescription

for intimacy between science and politics.

In the final years of the Reagan Administration, OSTP declined to a skeleton crew of a dozen or so caretakers disconnected from anything of importance. A major revival has occurred under Bush, with the staff now numbering about 45, making the science office one of the larger enclaves in the Executive Office of the President. But in numbers there is danger when a new President arrives at the White House.

Clinton, like all incoming Presidents, has pledged a great reduction in White House staffing—by 25 percent, he says. Whether this will actually occur is doubtful, since dodges exist for counting numbers on the White House staff.

The standard stratagem is to borrow people from departments and agencies, which are then stuck with paying salaries for White House staff members. But if the pledge of staff reduction is fulfilled, OSTP might be an attractive target, since White House political types have never really understood what the science office is supposed to do and why it holds so many precious staff slots.

Beyond what came out during the election campaign, there's close to nothing to report at present on what Bill Clinton plans to do about science and technology. In the absence of decisions in this area, speculation will have to do.—DSG

Wins and Losses for Congressional Friends of Science

Election defeats, retirements, and higher office have removed several members of Congress closely involved with scientific and biomedical issues. Meanwhile, two science boosters, Rep. George Brown (D-Calif.) and Senator Ernest Hollings (D-S. Carolina), won reelection contests that at times looked doubtful.

Rep. Joseph D. Early (D-Mass.), a faithful supporter of the National Institutes of Health where it really counts, on the House Appropriations Subcommittee for NIH, was defeated in his run for a 10th term. The Subcommittee is one of the most crucial decision points for determining NIH's fiscal fate, and lobbyists for biomedical interests valued Early's attentiveness and are lamenting his loss.

Rep. Don Ritter (R-Pa.), a rare scientist in Congress—MIT Sc.D. 1966 and various academic and industrial posts—was defeated after seven successive terms. Ritter tried to focus his professional training and interests on R&D issues. But, as a member of the Republican minority, and a loner in his own party ranks, he was unable to command the stage.

Rep. Bob Traxler (D-Michigan), Chairman of the Appropriations Subcommittee for NSF and NASA, was not a candidate for reelection. Traxler displayed moderate affection for the National Science Foundation, supporting budget increases, but never the big ones sought by the White House. Representing a district remote from NASA's largess, Traxler lacked the customary Congressional sympathy for the space agency's chimerical budgeting practices. He tried to kill the Space Station, but was too late. Spending on the venture had already built a lobby that defied a turnaround.

In tandem with Traxler's voluntary departure, Rep. Bill Green, of New York, the top Republican on the NSF and NASA Subcommittee, was defeated, thus removing an old friend of NSF and a thorn in the side of NASA.

On the winning side, science's leading enthusiast in the House, Chairman George Brown of the Science, Space, and Technology Committee, won by a safe margin after worrying his scientist friends. In a rare, if not unique, venture by scientists into Congressional politics, 30 eminences of the profession declared support for Brown and pitched in to raise campaign funds for him [SGR, November 1: "Science Elite Rallies to Re-Elect Rep. George Brown"].

Missing from Brown's Committee next year will be Rep. Howard Wolpe (D-Michigan), who was redistricted out of his seat. Wolpe made exceptionally good use of the chairmanship of the Investigations and Oversight Subcommittee to light up the fakery and misrepresentations that have been employed to sell the Superconducting Super Collider to a gullible Congress. In June, he successfully led a move in the House to kill the SSC. But, like the Space Station, the big particle accelerator had gone too far, and the vote was later reversed—with a strong assist from the argument that the SSC merits support as a job-producing construction project.

Also defying reelection doubts was another science supporter, Senator Ernest Hollings. As Chairman of the

Commerce, Science, and Transportation Committee, Hollings was a leader in creating the National Institute of Standards and Technology and the Technology Administration in the Department of Commerce. He also led the way in pressuring the Bush Administration into broadening the role of NIST and other federal agencies in promoting civilian technology. On Holling's Committee, Al Gore's departure leaves vacant the chairmanship of the Subcommittee on Science, Technology, and Space.

In recent years, durable incumbencies and few retirements usually produced only minor changes in committee lineups from one election to the next. When changes did occur, they were almost invariably predictable on a basis of seniority. It will be different, however, when the 103d Congress convenes in January: 110 of the 435-member House will be newcomers, as will 10 or 11 in the 100-member Senate—depending on the outcome of a runoff election in Georgia. Will the freshman class be tame or free-spirited? There's no telling beforehand.

Of particular interest in the distribution of power on Capitol Hill is the 60-member House Appropriations Committee, which has 19 highly coveted vacancies. The Chairman of the Committee, Jamie L. Whitten (D-Miss.), age 82, is hanging on, despite poor health. Number two on the Committee is William Natcher (D-Ky.), who lovingly chairs the NIH Subcommittee. Natcher, sprightly at 83, filled in for the ailing Chairman in the last session. If Natcher ascends to the full chairmanship, he could also remain head of the NIH Subcommittee, in the same way that Chairman Whitten also chaired the Appropriations Subcommittee for Agriculture, a favorite interest of his.

Industry Plans R&D Cuts

While politics has been extolling the virtues of investment in industrial research, industry itself remains cautious about spending on research and development, according to a survey of 141 firms released last week by the Industrial Research Institute (IRI), Washington-based association of research-oriented corporations.

Only 24 percent of the respondents expect to increase R&D spending next year, the IRI reports, while 28 percent said they plan reductions. Hiring decreases for newly graduated R&D personnel are in the plans of 40 percent of the firms, while only 10 percent expect to employ more new graduates. Some 85 percent of the companies said their R&D staffs would remain about the same or would decline next year. Plans also called for a slight decline in research as a percentage of sales.

Copies of the report, *IRI Annual R&D Trends Survey*, are available without charge from: Institute for Industrial Research, 1550 M St. NW, Washington, DC 20005; tel. 202/872-6350.

NSF Sets New Way to Count That Physicist Cabbie

Is the proverbial PhD physicist who drives a taxicab a physicist or a taxi driver?

Is the chemist without a chemistry degree a chemist?

These inscrutables, long the bane of the government's scientific and engineering head counters, may be headed for a resolution in the next big survey of these professionals, the Post-Censal Survey of Scientists and Engineers, to be conducted this year by the National Science Foundation as a regular follow-up to the 1990 census.

Acknowledging that its definitions have befogged the manpower landscape, NSF now says it will strive for clarity. In the past, according to the Foundation's Division of Science Resources Studies, "individuals with advanced degrees in physics who were employed as taxicab drivers were classified as physicists when they identified themselves as physicists and were classified as being outside of S&E [science and engineering] if they identified themselves as cab drivers."

But from now on, the Foundation says, "we will provide statistics for individuals who are educated in S&E fields, using definitions similar to those used by the National Center for Educational Statistics and we will provide data on individuals employed in S&E occupations, using occupational codes similar to those used by the Bureau of Labor Statistics and the Census Bureau."

Vocational head counting in science and engineering is a task NSF shares with the BLS and the Census. The outcome has been puzzling, if not useless, according to a 1989 report by the National Academy of Sciences Committee on National Statistics, *Surveying the Nation's Scientists and Engineers: A Data System for the 1990s*.

The Committee noted enormous differences in the counts of the agencies, with NSF, for example, reporting 492,000 mechanical engineers in 1986, while the Bureau of Labor Statistics found only 287,000. By NSF's count, "biological and life scientists" totaled 411,800, but the Bureau of Labor Statistics reported only 65,000.

Do the widely differing figures arise from counts based on academic degrees versus those based on actual employment? The puzzle runs deeper than mere definitional differences, the 1989 Academy report concluded.

Describing the incongruities as "not readily explainable," the report stated that "it is hard to know what to make of the fact that the NSF estimate of the total science and engineering population in 1984 is almost twice the Bureau of Labor Statistics (BLS) estimate of employed scientists and engineers, but only three-fifths of the Census Bureau estimate of persons with their highest degrees in a science or engineering field."

It also noted that "NSF estimates of growth rates in the science and engineering population in the 1980s are almost double those estimated from BLS data. We are greatly troubled by these differences," declared the Committee. Observing that degrees and work often do not match, the

report recommended a broad view of the science and engineering community. "NSF," it said, "should furnish information on the population of graduates in science and engineering fields, not all of whom have work-related experience. NSF should also furnish information on the population of employed scientists and engineers, not all of whom were trained in science and engineering fields. NSF," it concluded, "should discard the current screening algorithm as a means of defining the population."

The referred-to algorithm embraced science and engineering degree holders working in science and engineering, as well as those with S&E degrees working in other fields. But, the Academy report noted, it "excludes those who are currently employed in science or engineering if they do not have related training or prior experience"—though in 1984, a survey found, about one-fifth of college graduates working in science or engineering held degrees in other fields.

Agreeing that the counting method "used in the 1980s was conceptually confusing and should be replaced," NSF explained that it "was designed to reflect the diversity of definitions used by professional societies in defining who was or was not a member of the various science and engineering fields."

As noted in the Academy report, NSF conceded, "it was difficult for casual users to understand a definition which is this complex."

Regarding the PhD physicist-taxi driver, it should be recorded that White House Science Adviser D. Allan Bromley has publicly asserted on several occasions that only one exists and that he is personally acquainted with him. The physicist drives a taxi, Bromley explains, not out of necessity, but because he likes driving a taxi.

Hard Times for Science News

Specialized sections devoted to science news have become an endangered species in the American press, according to a survey by the Scientists' Institute for Public Information (SIPI), a New York-based non-profit devoted to promoting public understanding of science.

According to SIPI, the sections, usually published on a weekly basis, rose from 19 in 1984 to 95 in 1989. But they were especially hard hit by recession-induced ad losses, and this year only 47 are still being published. Of these, SIPI reports, half have been reduced in size, while many others have been converted to health sections that focus on diet, exercise, and life-style reports.

Many of the papers that have dropped the science sections, among them the *Los Angeles Times*, provide extensive coverage of research-related news in their regular news columns. But the specialized sections provided guaranteed space for science news and greater visibility. Few of them, however, attracted advertisers, and in better times were supported by the papers as a public service, SIPI reports,

NSF Resumes Publishing Two Statistical Reports

National Patterns of R&D Resources and *Science and Technology Pocket Data Book*, widely used serial publications that were discontinued for several years, will soon be off the press in updated editions, indicating that the long-troubled Division of Science Resources Studies at the National Science Foundation has regained an even keel.

In past editions, *Patterns* provided summaries and analyses of a wide variety of R&D data, including expenditures by source, type of research, share of budget, manpower resources, international comparisons, plus detailed tables tracing trends over two or three decades. The *Data* book, in

National Patterns of R&D Resources: 1992 (NSF 92-330) and ***Science and Technology Pocket Data Book: 1992*** (NSF 92-331), both soon available, without charge, from: NSF, Division of Science Resources Studies, 1800 G Street N.W., Washington, DC 20550; tel. 202/634-4300).

pocket-size format, distilled much of the same material. The forthcoming editions are expected to be along the same lines.

In the past, both publications provided the grist for discussions in Congress and elsewhere about the adequacy of federal R&D. Much of the material collected for them eventually went into the big, biennial publication produced by the Division, *Science Indicators*, which appears under the imprint of the National Science Board, NSF's policymaking body. *Indicators 1991* was completed on schedule and published last February, but the task of putting out that mammoth volume (487 pp.), sidetracked other work at the Division.

The two lapsed publications, which used to appear more or less annually, were last issued in 1990, during a period when the NSF Division was running through directors at a rapid pace and staff members were carrying charges of wrongdoings to Capitol Hill and the Justice Department [SGR, July 1, 1991: "NSF Wonders Whether It's Got a Scandal Brewing"]. An investigation by NSF's Inspector General produced findings of a managerial mess, but no support for allegations of conflicts of interest in contracting for outside services.

The Division has been headed since July 1991 by Kenneth Brown, an economist with extensive government service who came to NSF from the National Intelligence Council. The staff, which had declined from about 60 to 40 members in the year or two prior to his arrival, now stands at about 48. Among the new appointments is Deputy Director Alan R. Tupek, formerly with the Bureau of Labor Statistics.

Because Congress did not deliver on NSF's hopes for a large budget increase this year—it asked for 18 percent and got six—there were concerns about the fate of the Division's biggest undertaking, the decennial Post-Censal Survey of Scientists and Engineers. Budgeted for \$7.7 million, the

An Issue Science Won't Face

From the October 16 meeting of the Commission on the Future of the National Science Foundation.

John A. Armstrong, Vice President for Science and Technology, IBM. Our scientific community generally does not have a mechanism for answering the question, or even talking about the question: how much is enough? Or, what is the goal for the support of a particular area.... I have sat around this table, in my former life, when I was a member of the [NSF] Advisory Committee for Physics, and the only answer to how much was enough was more....

I think part of the difficulty that the whole scientific enterprise faces now is that, because we, as a community, have been unwilling to talk about that or to evolve a mechanism which could give answers, in a time when there is not more generally available, these decisions are being made ... by people who are not members of the scientific community. Let's put it that way.

So, we have in part ourselves to blame, in my opinion. But how many times should a particular faculty member replicate herself or himself in graduate centers? How many times world class should we be in a particular area? I have never heard any of my colleagues in universities say ... we really should be putting the money not in my field, but in somebody else's field....

In industry, it's the cry commonly around this table and in the press that industry is cutting back on certain types of research... But nobody considers the possibility that a certain field of research may not have the leverage anymore that it once had. And it is not shortsighted for industry to disinvest in a field which no longer has the leverage that it once had as a result of fabulous success....

But the university community, unless I'm very badly mistaken, does not have a way to deal with these issues. And, again, I've got to believe that we would make better decisions than our elected representatives.

Survey covers 200,000 persons who identified themselves as scientists or engineers in the 1990 census, and is the basic source of data about the employment, education, and distribution of the R&D workforce. Brown says the Survey will proceed as originally planned, but that several of the Division's activities will be trimmed as part of the Foundation's plan to accommodate the budget situation.

In a new study now under way, Brown told SGR, the Division is collecting statistics on scientific and engineering manpower in India, China, Japan, South Korea, Taiwan, and Singapore. The information, which is being obtained from the statistical services of these countries, is of interest, he said, because of their rapid economic growth. The study is expected to be ready for publication in a couple of months.

More IN PRINT: DOE Cleanup, Math and Industry

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SEMATECH was often referred to admiringly by Candidate Clinton as a model of federal support for high-tech industry. With half of its annual \$200 million budget provided by the Pentagon since its founding in 1987, SEMATECH is credited by some with achieving its goal of salvaging American semiconductor manufacturing. The CRS report, by Glenn J. McLoughlin, raises a variety of prickly issues, including the trend toward foreign ties and off-shore manufacturing by American semi-conductor firms, and the effects the 14-company consortium may have on small, non-participating semi-conductor firms. The report notes, "It is difficult—if not impossible—to get a clear picture as to what progress would have been made toward developing the same manufacturing tools in the absence of SEMATECH."

Order from: Library of Congress, Science Policy Research Division, Mail Code 7490, Madison Building, Washington, DC 20450; attn. Ms. Raap; tel. 202/707-7014.

Federal Research: Lessons Learned from SEMATECH (GAO/RCED-92-283; 24 pp., no charge), from the General Accounting Office (GAO), research agency for Congress, report requested by Chairman George Brown (D-Calif.), of the House Science, Space, and Technology Committee, suggests lessons derived from the SEMATECH experience, among them: industry members should lead the consortium and put up at least half the money "because they can best direct an R&D program designed to address their needs." Also, that "it be understood that improving US manufacturers' technological position will not necessarily lead to more jobs in the US economy because international business relationships are increasingly complex; and criteria should be established for determining how or when the government should end its funding for a consortium."

Also from the GAO: **Bone Marrow Transplants: National Program Has Greatly Increased Pool of Potential Donors** (GAO/HRD-93-11; 76 pp., no charge), reports favorably on the National Marrow Donor Program, which GAO says has increased its registry from 72,900 donors in 1989 to 560,900 in 1992. About 13 percent of 5600 searches between 1987-91 resulted in marrow transplants, the report says, noting that the median costs for a successful search, about \$20,000, "were mostly covered by private or public insurance." Minority enrollments are described as having increased substantially, but remain small relative to population. The GAO also reports briefly on the privately run, non-profit American Bone Marrow Donor Registry.

Order from: USGAO, PO Box 6015, Gaithersburg, Md. 20877; tel. 202/275-6241.

Environmental Restoration and Waste Management Manpower Needs Assessment: US Department of Energy Complex (DE 92 016648; 363 pp; \$44.40), report to the Department of Energy estimating the manpower that will be

required to clean up hazardous materials spilled and dumped in the vicinity of DOE laboratories for many decades—a multi-billion dollar task on the financial scale of the savings and loan debacle. The report, by the Pacific Northwest Laboratory and the Oak Ridge Associated Universities, Inc., says that as many as 25,000 scientists, engineers, and technicians will be required for the job during the next five years. Most in demand, says the report, will be health physics technicians, industrial hygienists, environmental scientists and engineers, chemical engineers, and hydrogeologists. A DOE press release says the study will be used "to support DOE decisions regarding investments in education and employee retraining programs."

Order from: National Technical Information Service, 5285 Port Royal Rd., Springfield, Va. 22161; tel. 703/487-4800.

The Mathematical and Computational Sciences in Emerging Manufacturing Technologies and Management Practices (87 pp., no charge), from the Society for Industrial and Applied Mathematics, says academe, industry, and government should cooperate to promote computational capabilities for advanced industrial methods. "Our central message," says the report, "is that a revolution transforming design and manufacturing is taking place." But it warns that lack of awareness of the potential and shortages of trained personnel are handicapping American industry. The report is by Avner Friedman, University of Minnesota; James Glimm, SUNY Stony Brook, and James Lavery, National Research Council.

Order from: Society for Industrial and Applied Mathematics, Customer Service, 3600 University City Science Center, Philadelphia, Pa. 19104-2688; tel. 1/800-447-7426.

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IN PRINT: "Is Science for Sale?" Health Costs, Etc.

The publications listed are obtainable as indicated—not from SGR.

Is Science for Sale? Transferring Technology from Universities to Foreign Corporations (House Report 102-1052; 26 pp., no charge), report by the House Government Operations Committee, says that foreign corporations are obtaining exclusive rights to US taxpayer-financed research at American universities, often at bargain prices. Noting the popularity of fee-based industrial liaison programs at cash-strapped universities, the Committee recommends that "Congress should ensure that American companies have preferential treatment in access to federally funded research results." It also says disclosure of industrial ties should be required in grant proposals, and that universities receiving NIH and NSF support should be required "to disclose investments in companies that may benefit from those funds, particularly foreign companies." The report, based on hearings held in 1989 and studies by the General Accounting Office, reflects the scientific protectionist mood gaining ground in Washington. Appended to the report is a dissent by Rep. Craig Thomas (R-Wyoming), who argues that the foreign issue is overblown and that it's not clear whether foreign acquisitions of US research are detrimental to this country. The inquiry, conducted by the Government Operations Subcommittee on Human Resources and Intergovernmental Relations, began under the Chairmanship of the late Rep. Ted Weiss (D-NY). His successor in that post, Rep. Donald M. Payne (D-NJ), says in a note appended to the report that "there is no reason why US companies should not be given preferential treatment, especially in terms of first refusal in the granting of exclusive licenses."

Order from: US House of Representatives, Documents Room, Annex II, Room B-18, Washington, DC 20515; tel. 202/225-3456.

Research Centers Directory: 1993 (2480 pp., two volumes, \$420), 17th edition of comprehensive directory of 13,000 university-related and other non-profit American and Canadian research organizations, in science, engineering, medicine, humanities, and other fields of scholarship. Included with each entry are address, telecommunications numbers, name of director, major research interests, sources of support, publications, etc.

Order from: Gale Research, Customer Service, 835 Penobscot Bldg., Detroit, Michigan 48226; tel. 1/800-877-4253.

Projections of National Health Expenditures (57 pp.) and **Economic Implications of Rising Health Care Costs** (62 pp., both without charge), from the Congressional Budget Office, prepared for the House Ways and Means Committee, companion reports, with the first projecting an increase in health-care spending from the present 12 percent of Gross Domestic Product to 18 percent by the year 2000. Detailing

the lusty growth of the health-care industry in an otherwise slack economy, the report notes that health-care employment rose by 639,000 from May 1990 to May 1992, while non-health jobs shrank by 1.8 million; physicians' net income grew at an average annual rate of 6.6 percent from 1982-90 while the average for all full-time workers grew 4.3 percent. The second report assesses health care's growing bite on the economy, noting that the cost of health benefits depresses wages, puts health insurance beyond the reach of millions, and burdens public budgets.

Order from: Congressional Budget Office, Publications, 2d and D Sts. SW, Washington, DC 20515; tel. 202/226-2809.

Advanced Materials and Processing: The Fiscal Year 1993 Program (211 pp., no charge), a government-wide review of programs in materials research, prepared by the Committee on Industry and Technology of the Federal Coordinating Council for Science and Technology (FCCSET), an appendage of the White House Science Office. Included are outlines of research activities in 10 federal agencies, budget data, and a list of "breakthrough opportunities." This and similar compilations of related research activities throughout the federal establishment are a useful innovation introduced by White House Science Adviser D. Allan Bromley, and carried out through FCCSET, which he has rejuvenated as the meeting ground of federal R&D agencies.

Order from: Committee on Industry and Technology/COMAT, c/o National Institute of Standards and Technology, Room B309, Materials Building, Gaithersburg, Md. 20899; tel. 301/975-5655.

Science Indicators: Compendium 1992 Quebec (152 pp., no charge), from the Quebec Ministry of Higher Education and Science, English edition of a detailed statistical account of R&D and related activities in the French-speaking Canadian province, which reports 1989 expenditures, from all sources, of Canadian \$2.2 billion in these fields. The comparable figure for all of Canada was \$8.7 billion, and \$4.4 billion for predominantly English-speaking Ontario. Reflecting the separatist spirit of Quebec, the report depicts the province as a substantial scientific power.

Order from: Ministère de l'Enseignement supérieur et de la Science, Direction des politiques et des priorités scientifiques, 1000, route de l'église (5 étage), Sainte-Foy, Quebec G1V 3V9, Canada; tel. 418/644-9762.

SEMATECH: Issues in Evaluation and Assessment (92-749 SPR; 45 pp., no charge), from the Science Policy Research Division of the Congressional Research Service (CRS), part of the Library of Congress, an examination of the criteria that might be employed to judge the success of the Semiconductor Manufacturing Technology consortium (SEMATECH). An unabashed exception to the Reagan-Bush abhorrence of feds trying to pick industrial winners, (Continued on Page 7)

